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Elaine T. Hebert, Energy Specialist
State of California
California Energy Commission
1516 Ninth Street, MS 25
Sacramento, CA 95814

Re: 2005 Building Energy Efficiency Standards, Title 24, Part 6, Section 118 (i) 3 and Table 118-C

Dear Elaine,

I am writing in reply to a letter Dated March 28, 2005 authored by National Coatings Corporation and the subsequent rulemaking proceeding on June 7, 2005 in Sacramento, CA. The letter I am referring to is attached and petitions the California Energy Commission to conduct a rulemaking proceeding to adopt an alternate test for determining satisfactory physical performance at low outdoor temperatures for "Liquid Applied Coatings". I understand that this proceeding has taken place and that the California Energy Commission is actively considering the proposed changes to the current code language.

I would have liked to attend the above proceeding, however the rulemaking proceeding was scheduled during the Western States Roofing Contractors Association Annual Convention. This is an extremely important convention for our company and I was unable change my schedule as I had already planned numerous meetings and appointments over the three day event. Because I was unable to attend the rulemaking proceeding, I wish to submit our company's objections to this proposed change, as stated below.

First, I am proud to be involved with new codes and standards designed to improve energy efficiency and lower cooling demand. As a California resident, I believe this is a critical step for our state to take. Our company is an Energy Star Partner and a Charter member of the CRRC. We are located in Long Beach, California and are very active in promoting and encouraging awareness of programs and codes such as Title 24. As a California business, we understand the consequences that wasted energy can create within a growing state like California. The adoption of new Energy Efficiency Standards is an important step not only for California, but for the entire country. Title 24 will set examples and pave the way for many other states to follow. However, in specifically looking at the "Liquid Applied Roof Coating" segment of the roofing market, we must be very careful in establishing minimum requirements for acrylic roof coatings. If the minimum requirements set are not able to

perform over time, we will have opened the floodgates to a wide array of potential failures resulting in the loss of any cooling benefit and energy reduction the coatings may have provided. Title 24 will tremendously increase coating sales in the roofing community and acrylic coating products can serve as a valuable asset; however, if you delve further into the coating industry, the number one reason our industry has not progressed is due to the failure of inferior coatings on the market. These inferior products have given our industry a black eye and have held our industry back for years. If you speak to any reputable roofing contractor or consultant that is familiar with white acrylic coatings, they will all have stories for you about the problems they have experienced. We do not believe this is something that Title 24 wants to be associated with.

Unfortunately some of the coatings that have failed on low slope roofs, still meet ASTM D 6083. Therefore, if the performance requirements of Title 24 are lowered as proposed, it will result in a higher rate of product failure and lessen the cooling impact of the installed coating. Please note that our company respects the efforts of ASTM and its organization; however, when ASTM Standards are created, they are created by committees. Committee members range from manufacturers to engineers to consultants, each of which have their own agenda. This results in compromise and approval of standards that are less than intended. The State of California is in groundbreaking territory with the adoption of new codes like Title 24. Our state needs to develop standards that we know will work! We should not base them on what someone else has done in the past. This is a chance to start things off on the right foot, let's not take two steps back!

Second, the letter states, "the current test requirement requires expensive equipment." This statement is extremely misleading to anyone that is not familiar with the equipment or other tests being completed in Part 6, Section 118 (i) 3. While this equipment can be expensive to purchase, these tests are completed by independent laboratories every day. This is a standard piece of equipment for any testing facility that performs work for our industry. In fact we have obtained quotations from several companies that document the costs of the cold temperature flex test (Mandrel Bend, ASTM D 522) vs. the cold temperature elongation test currently required by Title 24 (Instron with a Cold Box, ASTM D 2370). One particular laboratory, Momentum Technologies, can complete this testing for a minimal up charge over the ASTM D 6083 testing costs. The additional cost of \$62.50 to perform the "Cold Temperature Elongation" in an Instron with a Cold Box is extremely minimal in comparison to the over \$2,500.00 in overall costs to complete all additional tests required by Part 6, Section 118 (i) 3. The additional \$62.50 should not make a difference as this amount is less than sales price of a single 5 gallon container of white acrylic coating. So in reality, the cost of the equipment is totally irrelevant.

More importantly, why would the CEC dismiss the elongation testing due to the "Cost of Equipment," when other tests within Section 118 of Title 24 use this exact piece of equipment? Even with the modification of the current code as suggested, the cold temperature tensile test will still require this "Expensive" testing equipment. It seems ironic that those supporting the lowering of the Title 24 Standards forget to point this out. Yes, this exact equipment, an Instron with a Cold Box, is still required for other tests within Part 6, Section 118 (i) 3. Why wasn't an objection raised to the "Initial Tensile Test @ -18° C" if this test equipment is so expensive? This makes no sense and was only included as yet another excuse to have the existing performance requirements lowered.

Third, Elongation is a critical component of any roofing assembly. To think that an assembly will only bend in a single direction is unheard of. One of the reasons the elongation test was developed was to accommodate the various movements that occur within building structures and within the roof assembly. The elongation method of testing, ASTM D 2370, is a much more accurate test than a Mandrel Test, ASTM D 522, when comparing to real world situations. Unlike the Elongation Test, the Mandrel Test only measures the performance of the coating for flexibility in a single direction. Has anyone ever seen a real world building bent over a Mandrel? You may laugh, but on the other hand there is documented evidence of buildings expanding and contracting on a daily basis representing the conditions in ASTM D 2370. The Mandrel Test will by no means provide the same data as the Elongation Test. This is why there are two separate tests within ASTM for each measurement.

In addition, the referenced letter fails to recognize the unique climatic conditions of the State of California. California weather conditions actually pose a much harsher weathering environment than other regions of the country. In actuality, the tremendous UV exposure, smog and other conditions facing California are not present anywhere else in the country. These elements cause additional stress and wear on all roofing products. The State of California must recognize the severe climatic conditions surrounding our local environment and use standards that represent "Real World Conditions" rather than rely on standards created in other areas of the country using "Laboratory Conditions." The reduction in the performance requirements proposed in the letter authored by National Coatings will result in lower quality coatings and an increased number of product failures within the commercial market. These failures will destroy any cooling properties of the applied coating and ultimately return energy consumption to higher levels on the projects they have been applied to.

Finally, most every manufacturer is able to manufacture a coating that meets the current Title 24 requirements. The problem is that they are all looking for a competitive advantage and are looking at ways to lower their manufacturing costs to make up for the additional freight they will incur in shipping their products to California. I would urge you to review the location of all the "Additional Petitioners" that have signed the letter authored by National Coatings. Of the twenty-two additional petitioners, only two maintain manufacturing facilities within California. All of the listed "Additional Petitioners" want to supply their coatings to the California market, but they don't want to produce a quality product that will hold up to the weather conditions within our state. In addition, neither of the two largest California producers of roof coatings endorsed this petition.

In reality it is easier to manipulate a formula that will comply with the proposed changes than the current code requirements. This can be accomplished through the additions of plasticizers and other additives that cheapen the product yet still allow for performance characteristics that meet the proposed requirements. Specifically, it is much easier to meet the Mandrel Flex Test Requirements found in ASTM D 522 with a modified formula than it is to meet the Instron Elongation Test Requirements found in ASTM D 2370 with a modified formula.

The main concern with modified formulations is that over time the plasticizers and additives that allow the product to meet the Mandrel Flex Test Requirements migrate out of the coating and leave the product more susceptible to failure. Maintaining the current requirements of the Instron Elongation Test provide for a more realistic measurement of the

coating performance properties. This will ensure all manufacturers are on a level playing field and will prevent sub par coatings from meeting the lowered Title 24 requirements. Let's ensure coating performance is maintained at levels required for the climate conditions of California and measurable by "Real World" test standards. In the end, roof coatings that perform result in cooler buildings and lower energy consumption, which is the ultimate intention of Title 24.

This letter has been drafted in an effort to help those not familiar with the coating industry to see some of the challenges that we face on a daily basis. Without this knowledge, the proposed changes in the letter authored by National Coatings and sponsored by many other companies sound like positive additions to the code. However, in the real world these changes will result in lower performance properties that the end consumer and the State of California will pay for in the end. The State of California needs to set high standards for which all manufacturers will be accountable.

In conclusion, the current performance requirements are the best solution. Our company requests that the CEC does not change the standards which have been established as they are based on sound science. The current standards should be left as is, because it is the best solution to achieve energy reduction.

Thank you for your time and please contact me if you have any questions.

Sincerely,

Bob Hyer
Vice President, Commercial Sales & Marketing
APOC, A Division of Gardner Industries